

ENVIRONMENTAL PROTECTION AGENCY (EPA)
Gulf of Mexico Program Cooperative Agreements 2018
EPA-GM-Cooperative Agreements-2018-1

- a. Seagrass Protection and Restoration Through Community Engagement in Deadman Bay of Steinhatchee, Florida
- b. Big Bend Seagrasses Aquatic Preserve, 3266 North Sailboat Avenue Crystal River, Florida 34428
- c. Total Project Cost: \$119,583; EPA Funds Requested: \$65,300; Applicant Voluntary Cost Share: \$54,283
- d. Priority Area II: Protect, Enhance, or Restore Habitat
- e. N/A
- f. This proposal meets Goal 1 of EPA's Strategic Plan. Through the restoration of seagrass and increased community involvement and awareness regarding marine debris, the waters will be improved for the benefit of the wildlife, vegetation, recreational activities, and the local fishing economy.
- g. Big Bend Seagrasses Aquatic Preserve is taking advantage of the Gulf of Mexico Program Cooperative Agreements grant opportunity to restore the critical seagrass habitat in Deadman Bay of Steinhatchee, FL. Habitat will be restored through the annual removal of derelict fishing gear by partnering with the Steinhatchee community each winter, setting up a long-term data monitoring location to complement the seagrass restoration efforts, and providing quality outreach material to the Big Bend area to spread awareness and provide tips to reduce marine debris.
- h. This project aims to restore 2,400 square feet of seagrass habitat at the mouth of the Steinhatchee River, collect a baseline water quality dataset for five years, and increase community awareness of the impact of marine debris by reaching out to at least 360 people over the course of three years at education and outreach events in the Big Bend region.
- i. By involving the Steinhatchee community and local agencies to help with annual marine debris cleanups, the marine debris impact in the area can be reduced. Additionally, BBSAP staff will participate in local events with new outreach material designed to apply to the Big Bend region to spread awareness and train people in how to reduce marine debris.
- j. Deadman Bay can be found at the Steinhatchee River-Gulf of Mexico confluence in Taylor and Dixie counties in Florida. See map attachment.
- k. The anticipated timeline is three years with a start date of September 1, 2019 and an end date of August 31, 2022.

Section 1. Project Description/Approach

- A. DETAILED PROJECT DESCRIPTION: Big Bend Seagrasses Aquatic Preserve (BBSAP) is taking advantage of the Gulf of Mexico Program Cooperative Agreements grant opportunity to restore 2,400 square feet of the critical seagrass habitat in Deadman Bay of Steinhatchee, FL. Steinhatchee is a coastal town of approximately 1,000 residents; however, its outstanding commercial and recreational fishing and scalloping draws in thousands of visitors each year. Seagrass habitat will be restored through the annual removal of derelict fishing gear by partnering with the Steinhatchee community each winter, setting up a long-term water quality data monitoring location to complement seagrass restoration efforts, and by providing quality outreach material to the Big Bend region to spread awareness and provide tips to reduce marine debris. Seagrass restoration is measured by the number of traps removed each cleanup; one standard trap is 2-ft x 2-ft creating a 4-ft² footprint of shade, which inhibits growth of the seagrass underneath each trap. This project supports Priority II by providing impacted seagrass the opportunity to grow back by the removal of derelict crab traps and other marine debris. This project will demonstrate that the removal of marine debris will enhance the growth of seagrass. Additionally, this project seeks to protect seagrass long term by educating the local and surrounding communities about the importance of healthy seagrass habitat for their recreational activities and the income-driven commercial fisheries.

Studies have been done throughout the United States that show the removal of derelict fishing gear successfully provides the shaded-out vegetation the ability to recover. In Puget Sound, eelgrass cover improved by 30% in the first year of crab trap removal (June and Antonelis, 2009), and in coastal North Carolina, *Spartina alterniflora* had a complete recovery after 22 weeks of crab trap removal (Uhrin and Schellinger, 2011). In the Florida Keys, turtlegrass recovered after 4 months of lobster trap removal efforts (Uhrin et al., 2005). Annual derelict fishing gear cleanups in Deadman Bay will provide BBSAP, local agencies, and Steinhatchee residents a tangible, low-cost, and successful approach to seagrass restoration.

- B. PROJECT RELEVANCE: BBSAP, Florida's largest aquatic preserve, which protects over 900,000 acres of sovereign submerged land and boasts the second largest contiguous area of seagrass habitat in the eastern Gulf of Mexico, is supported by NOAA's Coastal Zone Management Program. This project ties in with BBSAP/Florida Coastal Office's, NOAA's, and the EPA's missions and goals to restore areas to their natural condition and encourage sustainable use and foster active stewardship by engaging local communities; conserve and manage coastal and marine ecosystems and resources; and to protect human health and the environment, respectively. The Gulf of Mexico region will benefit from this project because it can be easily duplicated in other coastal towns interested in cleaning up their marine debris, and seagrass is one of the most ecologically and economically valuable ecosystems to humans and the environment.

- C. **PROJECT IMPLEMENTATION:** Derelict fishing gear has become a significant problem in Deadman Bay; therefore, BBSAP staff is proposing to involve the community in annual marine debris cleanups in Deadman Bay. The cleanups would be scheduled during winter low tides to expose the most amount of marine debris. An FWC permit would need to be obtained to legally participate in the removal of derelict fishing gear. Each party would bring their own shallow-water vessel or ride along on an available boat, bring their own equipment, and be assigned a designated area of the bay to target. Once the boats are full, everyone would return to the docks and unload their haul into BBSAP's trailer. BBSAP staff hauls the debris to the landfill where they would count the traps and receive the weight of the debris. A letter of support from one of BBSAP's largest supporters of marine debris cleanups, University of Florida, is included in the Appendix. It is important that BBSAP gains support from Steinhatchee residents and the local agencies in order for this effort to be a long-term success of seagrass restoration and protection.

Section 2. Environmental Results- Outputs, Outcomes, and Performance Measures

- A. **OUTPUTS AND OUTCOMES:** Three outcomes are identified in this project:

Outcome 1: Restore 2,400 ft² of critical seagrass habitat in Deadman Bay.

Output 1: Schedule and execute Marine Debris Cleanup Days with Steinhatchee community involvement once a year for three years.

Output 2: Annually photo-document and record percent coverage of seagrass at 25 randomly selected, impacted sites.

The goal is to remove 225 traps the first cleanup, 200 traps the second, and 175 the third cleanup for a total of 600 traps resulting in 2,400 square feet of restored seagrass. Seagrass restoration is measured by the number of traps removed each cleanup multiplied by its surface area; one standard trap is 2-ft x 2-ft creating a 4-ft² footprint of shade. Even with increased involvement from locals, a decline in marine debris removed would like to be seen over the course of three years to imply that BBSAP's education and outreach efforts are working. On the contrary, if more traps are removed, it wouldn't count as a failure to seagrass restoration efforts. The number of participants and their association, number and kind of bycatch, number of derelict traps removed, and the number of pounds of marine debris removed are recorded at each Marine Debris Cleanup Day.

During the first Marine Debris Cleanup Day, 25 random derelict crab traps will have a GPS location taken and then removed from the water. The space where the derelict trap once laid will be photo-documented to show the impact of the trap to the surrounding seagrass. These 25 sites will be photo-documented annually during the next Marine Debris Cleanup Days resulting in three photos per site by the end of the project. Additionally, percent coverage of seagrass in the 25 sites will be monitored each time the sites are photo-documented to show the restoration of the seagrass from the removal of marine debris.

Outcome 2: Increase community awareness of marine debris issue by reaching out to at least 360 people over the course of three years at education and outreach events in the Big Bend.

Output 1: Schedule three tabling or speaking events each year for three years.

Output 2: Design and print new, updated marine debris outreach materials.

The goal is to reach out to at least 40 people per outreach event. Three events per year for three years would come to a total of 360 people with changed behaviors. The number of people interacted with at each event and the number of brochures distributed will be recorded.

Outcome 3: Implement a long-term data monitoring site to provide opportunities for future research studies.

Output 1: Record five consecutive years of water quality data at the mouth of the Steinhatchee-Gulf of Mexico confluence.

Output 2: Prepare and submit annual QAQC water quality reports.

Output 3: Make data available to the public annually through FDEP's FTP site.

The goal is to set up a long-term water quality dataset of five years or more. Studies can complement the seagrass restoration efforts, such as analyzing the salinity, turbidity, chlorophyll, and blue-green algae readings from the datalogger and annual rainfall data to study the effects of marine debris removal on water quality. An initial QAQC will be performed by BBSAP staff that flags any data outside of acceptable sensor ranges and anomalies.

- B. **PROJECT PERFORMANCE:** This project supports the three outcomes and its outputs listed above due to its quantitative measures, and BBSAP staff each have tasks to ensure tracking and reporting of its accomplishments. The ESIII is responsible for purchasing the necessary equipment and scheduling the marine debris cleanups with partners. The ESII is responsible for designing and printing outreach materials, scheduling outreach events, the annual seagrass monitoring report, and gaining community involvement for the cleanups at the outreach events. The ESI is responsible for the grant reporting requirements, annual QAQC of all water quality data, and attending outreach events with the ESII. The administrative assistant helps with purchasing and the budget. The ESI, II, and III all participate in the marine debris cleanups and help count derelict crab traps on FWC's Derelict Trap Retrieval and Debris Removal Program datasheets and help with the initial installation and continuous upkeep of the datalogger site. Despite the end of the grant-designated outputs in three years, the efforts from the project will go on long-term. Annual marine debris cleanups and continuous water quality recording from the data logger will still occur since the grant funded the equipment.
- C. **ACTION PLAN, TIMELINE, AND MILESTONES:** Major tasks include purchasing the equipment as soon as the awarded grant funding becomes available, scheduling Marine Debris Cleanup Days in advance to maximize partner and community involvement, attending Marine Debris Clean Up Days, photo-documenting and recording percent coverage annually at 25 GPS marine debris-impacted sites, signing up or scheduling and attending outreach events, annual QAQC of water quality data, and submitting semi-annual and annual reports to the EPA.

Year 2: 08/01/2020 - 07/31/2021**Year 3: 08/01/2021 - 07/31/2022**

Grant Reporting	Annual Grant Report																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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D. ENVIRONMENTAL DATA STATEMENT: N/A

Section 3. Outreach Component

After the completion of three Marine Debris Cleanup Days, the number of derelict crab traps, pounds of marine debris removed, the number of participants and their affiliations, and the number and kind of bycatch from the derelict traps will be totaled. Results will be included in the final annual report to the EPA, a one-page infographic will be shared with all participants in the clean ups with the message to share on their social media pages, submitted to Florida Coastal Office (FCO)/FDEP superiors to share at quarterly conference calls, shared on our social media pages, and a scientific poster will showcase the results for future outreach events. This poster will also be duplicated and hung in the Visitor Center at the BBSAP office to reach visitors and locals. The infographic shared on the participant's social media will be important in order to reach the correct audience; BBSAP isn't well known, and Steinhatchee residents most likely

follow their local marinas and neighbors on social media to keep up on local matters, fishing reports, etc.

Section 4. Applicant Capability and Past Performance

BBSAP has not participated in any federally funded assistance agreements within the past three years.

ORGANIZATIONAL EXPERIENCE AND STAFF EXPERTISE:

BBSAP staff manages two aquatic preserves, St. Martins Marsh Aquatic Preserve and Big Bend Seagrasses (collectively referred to as Big Bend Seagrasses Aquatic Preserves or BBSAP), that encompass almost one million acres of submerged lands with a field staff of three and an Administrative Assistant. The ESIII/Aquatic Preserve Manager, Timothy W. Jones, has worked for FDEP/FCO for almost 20 years. The ESII, Jamie Letendre, has 6 years with BBSAP. The ESI, Trisha Green, has been with BBSAP for one year. The Administrative Assistant, Katharine Smith, has worked for FDEP for 20 years. Jones and Letendre contribute the most expertise to marine debris removal, participating in over a dozen internally organized marine debris cleanups and Ocean Conservancy's International Coastal Cleanup annually. Scheduling and partner involvement is their specialty; partnership is crucial to BBSAP due to its extensive acreage and limited staff. They also have an in-depth knowledge of seagrass monitoring from monitoring 125 seagrass sites annually. A continuous water quality monitoring program has been run by BBSAP staff using YSI 600 and 6600s for over ten years. As a newer employee, Green is being trained on YSI's and the new EXO's to prepare for new model replacement. Letendre and Green attend over a dozen outreach events a year including Open Houses and Refuge Days at the National Wildlife Refuges, Science Nights at the elementary schools, Summer Camp, National Estuaries Day, Save Our Waters Week, and guided kayak tours.

5. Expenditure of Awarded Funds:

FDEP has a stringent process for grant awards and purchasing over \$1,000. A quote for each item is collected, and a purchase order is submitted. The Aquatic Preserve Manager and the Regional Manager approve the purchase order. It is then submitted and sent to a Purchasing Agent who then sends the order to the vendor. Once BBSAP has received the goods, the invoice is submitted for payment on Florida Marketplace, and the Administrative Assistant sends the payment.

Budget Narrative

Personnel: Salary and wages of each employee involved in this proposal was calculated by the numbers of hours anticipated spending on the three portions of the project: 1. Marine debris cleanup, 2. Datalogger, and 3. Education and Outreach. Hours were then converted to percent of year and multiplied by each FTE's salary. ESIII is the manager, ESII handles resource management and outreach, and ESI focuses on water quality. The administrative assistant is included for purchasing responsibilities and reporting review. Year 1 involves more planning than the subsequent two years, so staff time is a larger value in the first year. The following

estimates include a two-hour drive time from the office to Steinhatchee plus actual time on the water working per each visit. Initial datalogger installation, maintenance, data management, and reporting are included in datalogger time. Education and outreach are calculated to include planning, material design, drive time, and averaging eight hours per event with three outreach events per year in the Big Bend. During Year 1, the marine debris cleanup is estimated to take up about 75 hours of staff time, the datalogger will take about 800 hours of staff time, and outreach will take 185 hours. In Year 2, the marine debris cleanup is estimated to take up about 70 hours, dataloggers around 775 hours, and outreach at 100 hours of staff time. Year 3 plans to follow the same time expense as Year 2. Staff time is directly related to the completion of each outcome, output, task, and deliverable. **Total: \$52,678.00**

Fringe Benefits Total: \$0.00

Travel: BBSAP's annual budget for fuel is \$10,000. Dividing that by 12 months is about \$833.33 per month. Each cleanup, BBSAP will bring two trucks, one hauling the clean-up vessel and one hauling a trailer. Fuel will be needed to travel to the datalogger twice a month and to travel to an average of three outreach events per year. Fuel economy decreases the heavier the load, so \$500 was estimated to be a sufficient in-kind value for each year's travel expense. Travel will allow for the completion of all the proposed project outcomes.

Total: \$1,500.00

Equipment: BBSAP is requesting **\$62,300 (EPA Funds)** in grant award money for equipment. Quotes for an upgraded 6.0 Levitator airboat engine and installation costs come to \$13,300. An airboat engine is crucial to this operation in order to meet the outcome of 2,400 square feet of restored seagrass. Derelict crab traps are found mostly in the shallow areas along the coastline where an outboard motor cannot safely reach. A 10-foot Anderson trailer Model D6106TLP will provide a better method of transferring and dumping the marine debris than the less than ideal, current equipment and methods used. Two EXO 2 brand, multi-parameter dataloggers fully equipped with probes (conductivity/temperature, pH, optical DO, turbidity, and chlorophyll/blue-green algae) adapters, anti-fouling accessories, calibration standards, maintenance and cleaning tools, and batteries cost approximately \$40,000. Two dataloggers are necessary for a successful, continuous dataset with no interruptions; battery life is a limitation to datalogger deployment. The dataloggers will allow for the long-term dataset necessary for future studies in the Steinhatchee area. **Total: \$62,300.00**

Supplies: Lastly, BBSAP is requesting **\$1,500 (EPA Funds)** for outreach materials. It will cover the cost of purchasing seasonal boat ramp signage and handouts with enough to last at least three years. Currently, BBSAP only has one marine debris brochure for outreach events. New, updated material will help spread the message to more people about how to reduce marine debris. This award money will allow BBSAP to meet all three outcomes proposed in this project. **Total: \$1,500.00**

Other: \$1,500 (EPA Funds) will be used for the cost of printing outreach materials such as posters, posters and other outreach materials. Lastly, BBSAP will cover the costs (\$105) at the landfill. There is a \$4.00 fee for each vehicle plus \$60.00 per ton of waste. Half a ton of marine

debris plus the fee per vehicle was over-estimated at \$35.00 per year just in case rates change at the landfill. **Total: \$1,605**

I. Salary and Wages (FTE x % of year spent of grant fulfillment)					Year 1	Year 2	Year 3	Total
Name	FTE	Year 1 %	Year 2 %	Year 3 %				
ESIII	\$ 45,848.04	9.25	9.25	9.25	\$ 4,240.00	\$ 4,240.00	\$ 4,240.00	\$ 12,720.00
ESII	\$ 38,400.00	13.90	10.97	10.97	\$ 5,336.00	\$ 4,214.00	\$ 4,214.00	\$ 13,764.00
ESI	\$ 32,388.72	26.83	26.35	26.35	\$ 8,691.00	\$ 8,536.00	\$ 8,536.00	\$ 25,763.00
Administrative Assistant	\$ 30,966.00	0.53	0.43	0.43	\$ 163.00	\$ 134.00	\$ 134.00	\$ 431.00
TOTAL SALARY AND WAGES					\$18,430.00	\$17,124.00	\$17,124.00	\$ 52,678.00
II. Fringe Benefits (N/A)					Year 1	Year 2	Year 3	Total
TOTAL FRINGE BENEFITS					\$ -	\$ -	\$ -	\$ -
III. Travel					Year 1	Year 2	Year 3	Total
See budget justification					\$ 500.00	\$ 500.00	\$ 500.00	\$ 1,500.00
TOTAL TRAVEL					\$ 500.00	\$ 500.00	\$ 500.00	\$ 1,500.00
IV. Equipment					Year 1	Year 2	Year 3	Total
Airboat Engine					\$13,300.00	\$ -	\$ -	\$ 13,300.00
Trailer					\$ 9,000.00	\$ -	\$ -	\$ 9,000.00
(2) EXO Datalogger					\$40,000.00	\$ -	\$ -	\$ 40,000.00
TOTAL EQUIPMENT					\$62,300.00	\$ -	\$ -	\$ 62,300.00
V. Supplies					Year 1	Year 2	Year 3	Total
Outreach Materials					\$ 1,500.00	\$ -	\$ -	\$ 1,500.00
TOTAL SUPPLIES					\$ 1,500.00	\$ -	\$ -	\$ 1,500.00
VI. Contractual (N/A)					Year 1	Year 2	Year 3	Total
TOTAL CONTRACTUAL					\$ -	\$ -	\$ -	\$ -
VII. Other					Year 1	Year 2	Year 3	Total
Landfill Costs					\$ 35.00	\$ 35.00	\$ 35.00	\$ 105.00
Outreach Printing Costs					\$ 1,500.00	\$ -	\$ -	\$ 1,500.00
TOTAL OTHER					\$ 1,535.00	\$ 35.00	\$ 35.00	\$ 1,605.00
					Year 1	Year 2	Year 3	Total
TOTAL DIRECT					\$84,265.00	\$17,659.00	\$17,659.00	\$ 119,583.00
TOTAL INDIRECT					\$ -	\$ -	\$ -	\$ -
TOTAL					\$84,265.00	\$17,659.00	\$17,659.00	\$ 119,583.00

APPENDIX.

A. LETTER OF SUPPORT



UF/IFAS
Nature Coast Biological Station

552 1st Street
PO Box 878
Cedar Key, FL 32625
352-352-6080
www.ncbs.ifas.ufl.edu

Mrs. Trisha Green
Big Bend Seagrasses Aquatic Preserve
FL Department of Environmental Protection
3266 North Sailboat Avenue
Crystal River, Florida 34428

Dear Mrs. Green,

Thank you for the opportunity to provide this letter of support for Big Bend Seagrasses Aquatic Preserve's request for grant funding through the "Gulf of Mexico Program Cooperative Agreements 2018."

Big Bend Seagrasses Aquatic Preserve (BBSAP) is taking advantage of the Gulf of Mexico Program Cooperative Agreements grant opportunity to protect and enhance the critical seagrass habitat in Deadman Bay of Steinhatchee, FL. Habitat will be enhanced through the annual removal of derelict fishing gear. Additionally, the execution of an education and outreach program with the local and regional communities will help protect the critical seagrass communities for years to come. BBSAP is classified as an Outstanding Florida Waters (OFW) and the boundary encompasses approximately 984,325 acres of submerged habitats. BBSAP contains one of the largest and most pristine seagrass beds in the United States and is the second largest contiguous seagrass bed in the State of Florida.

Sincerely,

A handwritten signature in black ink, appearing to read "Savanna Barry".

Savanna Barry, Ph.D.
Regional Specialized Extension Agent
UF/IFAS Extension and Florida Sea Grant

The Foundation for The Gator Nation
An Equal Opportunity Institution

B. WORKS CITED

A.V. Uhrin, M.S. Fonseca, G.P. DiDomenico. Effect of Caribbean Spiny Lobster Traps on Seagrass Beds of the Florida Keys National Marine Sanctuary: Damage Assessment and Evaluation of Recovery. P.W. Barnes, J.P. Thomas (Eds.), American Fisheries Society, Bethesda, MD, USA (2005), pp. 579-588.

A.V. Uhrin, J. Schellinger. Marine debris impacts to a tidal fringing-marsh in North Carolina Mar. Pollut. Bull., 62 (2011), pp. 2605-2610.

June, J., Antonelis, K., 2009. Marine Habitat Recovery of Five Derelict Fishing Gear Removal Sites in Puget Sound, Washington, Report prepared by Natural Resources Consultants, Inc. for the Northwest Straits Initiative. Northwest Straits Foundation, Bellingham, WA, p. 19.